DOCUMENT RESUME

ED 316 560 TM 014 510

AUTHOR Huetteman, Julie Doidge
TITLE Instrument for Textbook Assessment.
PUB DATE 89
NOTE 12p.; An earlier version of this paper was presented at the National Convention of the American Alliance for Health, Physical Education, Recreation, and Dance (Boston, MA, April 19-23, 1989).
PUB TYPE Reports - Evaluative/Feasibility (142) -- Speeches/Conference Papers (150) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Charts; Content Analysis; Data Collection; Illustrations; *Layout (Publications); Photographs; *Readability; Statistical Analysis; Tables (Data); *Test Construction; Textbook Content; *Textbook Evaluation
IDENTIFIERS Frequency Analysis; *Instrument for Textbook Assessment; SMOG Readability Formula

ABSTRACT

An instrument to assist in assessing textbooks was created to provide a concise format for comparison and evaluation. Textbook characteristics were selected to illustrate content and proportion of characteristics of textbooks. Nine textbook characteristics were selected for quantifying the content areas of textbooks: (1) number of pages in the textbook; (2) number of pages of text; (3) proportion of text space; (4) frequency of photographs; (5) proportion of photograph space; (6) frequency of tables/charts/illustrations (T/C/I); (7) proportion of T/C/I space; (8) proportion of other space; and (9) SMOG readability level. Data collection charts were assessed for content validity by a panel of experts. Field testing of the data collection chart was performed by a panel of instructors. Interrater reliability was assessed at 0.88. Analyses made of each textbook page involved: scanning the page for headings or titles indicating content area; counting the number of photographs and T/C/I; and estimating the page space to determine the proportion of the textbook characteristics (text, photographs, T/C/I, and "other" characteristics). Compilations of data are presented in terms of descriptive statistics (frequency, percentages, mean, and rank order). Recommendations are provided for use of the instrument in assessing textbook characteristics and content. The data collection chart and analyses of sample textbook pages are provided. (Author/TJH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED316560

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
JULIE DOIDGE HUETTEMAN
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

INSTRUMENT FOR TEXTBOOK ASSESSMENT

Julie Doidge Huetteman, M.S.
Ph.D. Candidate

Department of Health Education
College of Education
Southern Illinois University at Carbondale

Communications should be sent to:

Julie Doidge Huetteman
Department of Health Education
Southern Illinois University
Carbondale, IL 62901
(618) 453-2777

An earlier version of this paper was presented at the American Alliance for Health, Physical Education, Recreation, and Dance National Convention in Boston, Spring 1989

TM014510

INSTRUMENT FOR TEXTBOOK ASSESSMENT

ABSTRACT

Selecting a textbook can be a difficult job. Instructors may face the task of comparing numerous textbooks and deciding how to select the best material appropriate for their classes. An instrument to assist in assessing textbooks was created to provide a concise format for comparision and evaluation.

Textbook characteristics were selected to illustrate the content and proportion of characteristics of textbooks. Nine textbook characteristics were selected for quantifying the content areas of textbooks: (a) number of pages in textbook, (b) number of pages of text, (c) proportion of text space, (d) frequency of photographs, (e) proportion of photograph space, (f) frequency of tables/charts/ illustrations (T/C/I), (g) proportion of T/C/I space, (h) proportion of other space, and (i) SMOG readability level. Data collection charts were assessed for content validity by a panel of experts. Field testing of the data collection chart was performed by a panel of instructors. Interrater reliability was assessed at .88.

Analysis is made of each textbook page by: 1) scanning the page for headings or titles indicating content area, 2) counting the number of photographs and T/C/I, and 3) estimating the page space to determine proportion of the textbook characteristics: text, photographs, T/C/I, and other. Compilations of data are presented in terms of descriptive statistics: frequency, percentages, mean, and rank order. Recommendations are given for use of the instruments in assessing textbook characteristics and content.

INTRODUCTION

The purpose of the instrument for textbook assessment is to provide a format to analyze textbooks by content and textbook characteristics. The instrument created was used to analyze health textbooks designed for college personal health courses. The difficulty in selecting textbooks for personal health courses has been recognized. Cottrell (1984/85) noted "the nature of teaching personal health. There are always hard decisions to make about content and how best to utilize class time...[authors and publishers] simply put it all together in their text, leaving the task of deciding up to each individual intructor" (p. 53).

An instructor or course coordinator may have the task of choosing a textbook for college health courses. Faculty assigned to teach college general education health courses are faced with a wide variety of textbook choices in a highly competitive market. Drolet (1984), in a book review of a college health textbook, indicated that it was "one of over two dozen college-level personal health texts, [which] follows the current trend toward approaching a myriad of health-related topics from a 'holistic' perspective." (p. 54). Waigandt (1984) also indicated that "there are several perspectives from which personal health education may be presented to a target group, and there are many personal health textbooks on the market" (p. 54). Jones (1986/7) stated that there is a "prolific market of [textbooks for] the entry level college health course" (p. 47).

TEXTBOOK CHARACTERISTICS

Textbook characteristics were selected to illustrate the content and proportion of characteristics of textbooks. Nine textbook

characteristics were selected for quantifying the content areas of textbooks: (a) number of pages in textbook, (b) number of pages of text, (c) proportion of text space, (d) frequency of photographs, (e) proportion of photograph space, (f) frequency of tables/charts/ illustrations (T/C/I), (g) proportion of T/C/I space, (h) proportion of other space, and (i) SMOG readability level. Content area refers to a broad grouping of subjects or topics covered by text. Page refers to the printed number of the textbook page. Text is the typed information which conveys the details of the content area. Photograph is defined as any photographic pictures, x-rays, or microscopic photographs. Tables, charts, and illustrations are any graphic, table format, or drawing presentations of information. Frequency is the number of photographs or T/C/I on one page. Space refers to the amount of page space covered by text, photographs, or T/C/I. Other space is the amount of page space covered by textbook characteristics which do not fit into the three categories. Examples of other are: activities or self-directed tasks; discussion questions; review sections; lists of objectives or chapter contents; self-quizzes or tests; references, resources, or bibliography; glossary or key terms.

INSTRUMENTS

Data collection charts and compilation sheets were designed for the analysis of textbooks. A cover sheet of the data collection packet is used to record information about the textbook: (a) title, (b) author(s), (c) date of publication, (d) edition, and (e) publisher.

The data collection chart, with 10 vertical columns, is used to tabulate frequency, proportion, and readability level to quantify the

content areas of textbooks. These columns, numbered 1 to 10, assist raters in following the steps in analyzing each page of the textbook.

Key terms are written in column 1 to indicate the content area. The page number is written in column 2. Columns 3 and 4 are grouped under frequency, and columns 5 to 8 are grouped under page space. The page space columns (5-8) are shaded in gray to set them off from the rest of the columns. Frequency of photographs and T/C/I are recorded in columns 3 and 4. Proportions of text, photographs, and T/C/I are recorded in columns 5, 6, and 7. Textbook characteristics which did not fit into the textbook characteristic categories of text, photographs, and T/C/I, are recorded as a proportion in the other column, number 8. A brief description of the other textbook characteristic is recorded in column 9. Readability level of the text in each chapter is determined using the SMOG readability formula and recorded in column 10.

Insert Figure 1 about here

Totals for each textbook characteristic (columns 3 - 8) are transferred from the data collection charts to compilation sheets. Textbook titles are listed across the top of the data compilation sheets and the textbook characteristics are labeled along the left side of the page.

FIELD TESTING

The data collection chart used in this study was assessed for content validity by a panel of health education specialists. Field testing for interrater reliability of the data collection chart was

performed by a panel of instructors of college personal health courses. Each instructor completed data collection on a sample chapter. Completion time of the field testing packet ranged from 35 to 50 minutes.

On completion of the field test, interrater reliability was initially assessed at .30. Based on written and oral comments and questions from the field testing panel, modifications were made on the directions for completing the analysis, stating them more directly and with fewer words, thus creating more white space on the page. After comparing the panel members' data collection charts, it was found that most discrepancies in assessments occurred on textbook pages which were divided into thirds. Since original proportions were 0.25, 0.50, 0.75, and 1.00, revisions were made on the instrument adding the measurements of 0.33 and 0.67 for proportion of page space.

A second field test was completed with the revised packet and a new panel of personal health course instructors. Completion time of the second field testing packet ranged from 20 to 40 minutes. Interrater reliability was estimated to be .88.

DATA COLLECTION

Analysis of entire textbooks excludes introductory information, prefaces, and indexes. To complete the textbook assessment, each page of every chapter is examined for frequency and proportion of textbook characteristics. The SMOG readability formula is applied to each chapter.

Analysis is made of each page by (1) scanning the page for headings or titles which indicate the content area, (2) counting the number of photographs and T/C/I, and (3) estimating the amount of page

space to determine proportion of the textbook characteristics: text, photographs, T/C/I, and other.

Frequencies (columns 3 and 4) are recorded for photographs and T/C/I. Most often, photographs and T/C/I are labeled (i.e., Figure 3.1 or Table 4.7). When this occurrs, one characteristic is counted for each label. If the figure or table that is labeled has more than one photograph or T/C/I, it is still counted as one characteristic per label. If a photograph or T/C/I starts on one page and continues onto the next, it is not counted a second time. An abbreviation of the word continued is written in the frequency box for the second page.

Page space (columns 5 - 8) is recorded by estimating to the nearest quarter of a page, the amount of the page the textbook characteristic (text, photograph, T/C/I, or other) covers. Captions which accompanied photographs and T/C/I are included in the page space estimate of that characteristic. Page space is indicated using one of the following decimal numbers: a) 0.00, b) 0.25, c) 0.33, d) 0.50, e) 0.67, f) 0.75, g) 1.00.

The page space columns 5 - 8 are shaded to help raters keep the frequency and space tabulations separate, and to double-check that no mistakes are made. The four boxes that are shaded in each horizontal row are totaled. If the total of the 4 shaded boxes in a horizontal row is more than 1.00, it indicates that a mistake has been made. The total of all 4 shaded boxes should be 1.00 if the page is completely covered, or less than 1.00 if a portion of the page is blank.

Insert Figure 2 about here

When data collection of a textbook is complete, the vertical columns of frequency and page space (columns 3 - 8) are totaled, first by chapter and then by a composite for the entire textbook. From the readability levels of all chapters, a mean readability level is determined for the entire textbook.

DATA ANALYSIS

Totals from the data collection charts are transferred to a set of data compilation sheets for comparison analyses of clusters, patterns, and trends. The first data compilation sheet is used to record textbook totals for frequency of pages, photographs, and T/C/I, and page space characteristics of text, photographs, T/C/I, and other. It also contains the proportion of all textbook characteristics in relation to the entire textbook. Each characteristic total is divided by the textbook total to determine its proportion of the textbook.

A second data compilation sheet is used to indicate totals for a single content area. For each content area, recordings can be made of the frequency totals of pages, photographs, T/C/I, the proportion of each textbook characteristic per content area, and the proportion of the content area space within the entire textbook. Compilation of the data is presented in terms of descriptive statistics, specifically frequency, percentages, mean, and rank order.

RECOMMENDATIONS

Data collection instruments were created to assess the content in textbooks by quantifying the amount of four textbook characteristics: text, photographs, T/C/I, and other. Depiction of the compilations of these textbook characteristics illustrates the balance of content and

textbook characteristics found in textbooks. These instruments provide a specific format from which textbooks can be assessed and compared. The format of tabulating textbook characteristics and content is appropriate for use in many disciplines and at many levels. Health educators will find these instruments helpful in making decisions about textbook selection by depicting the characteristics and content of health textbooks.

REFERENCES

Cottrell, R. R. (1984/1985). Health through discovery. [Book Review]. Health Education, 15(7), p. 52.

Drolet, J. C. (1984). Health for human effectiveness. [Book Review]. Health Education, 15(2), p. 54.

Jones, H. (1986/87). Connections for health. [Book Review]. Health Education, 17(6), p. 47.

Waigandt, C. A. (1984). Health. [Book Review]. Health Education, 15(1), p. 54.

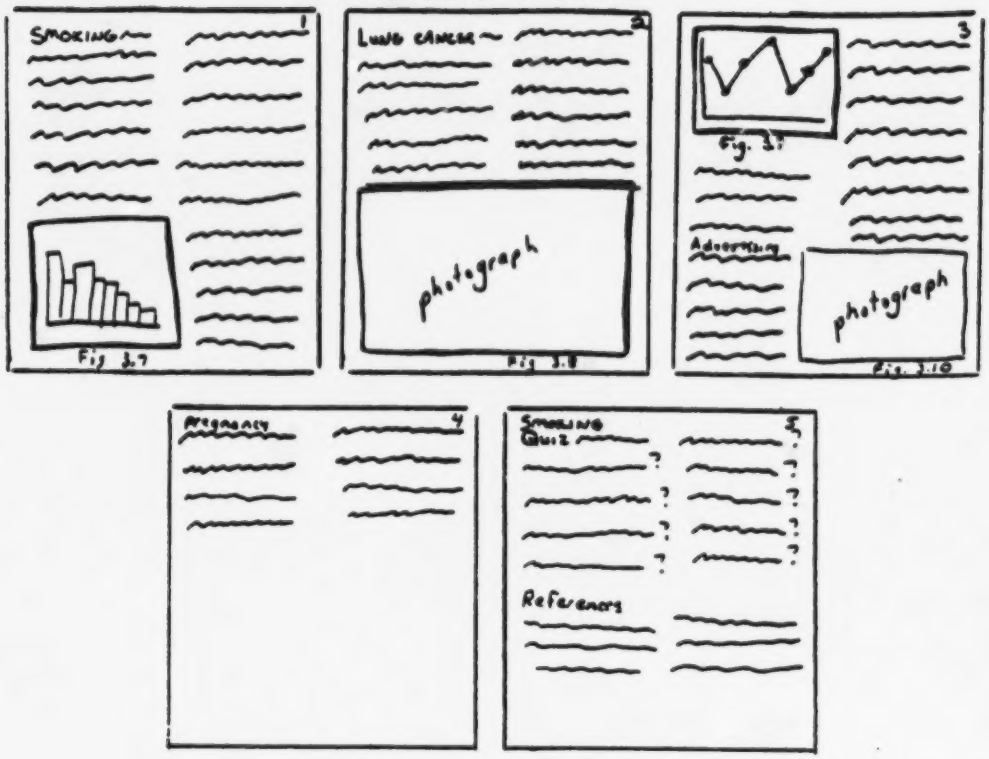
FIGURE 1

Data Collection Chart

1	2	3	4	5	6	7	8	9	10
Content Area	Page no.	Frequency		Page Space				Description of Other	SMOG
		Photo	T/C/I	Text	Photo	T/C/I	Other		

FIGURE 2

EXAMPLE TEXTBOOK PAGES



DATA COLLECTION OF EXAMPLE TEXTBOOK PAGES

1	2	3	4	5	6	7	8	9	10
Content Area	Page no.	Frequency		Page Space				Description of Other	SMOG
		Photo	T/C/I	Text	Photo	T/C/I	Other		
Smoking	1	—	1	.75	—	.25	—		Beg 30 Mid 35 End 35
Lung Cancer	2	1	—	.50	.50	—	—		
Advertising	3	1	1	.50	.25	.25	—		100
Pregnancy	4	—	—	.33	—	—	—		$\sqrt{100} = 10$
Smoking	5	—	—	—	—	—	.75	quiz & references	10 + 3 = (13)